



SILOS AND PASTURE LANDS,

A PAPER

BY THE

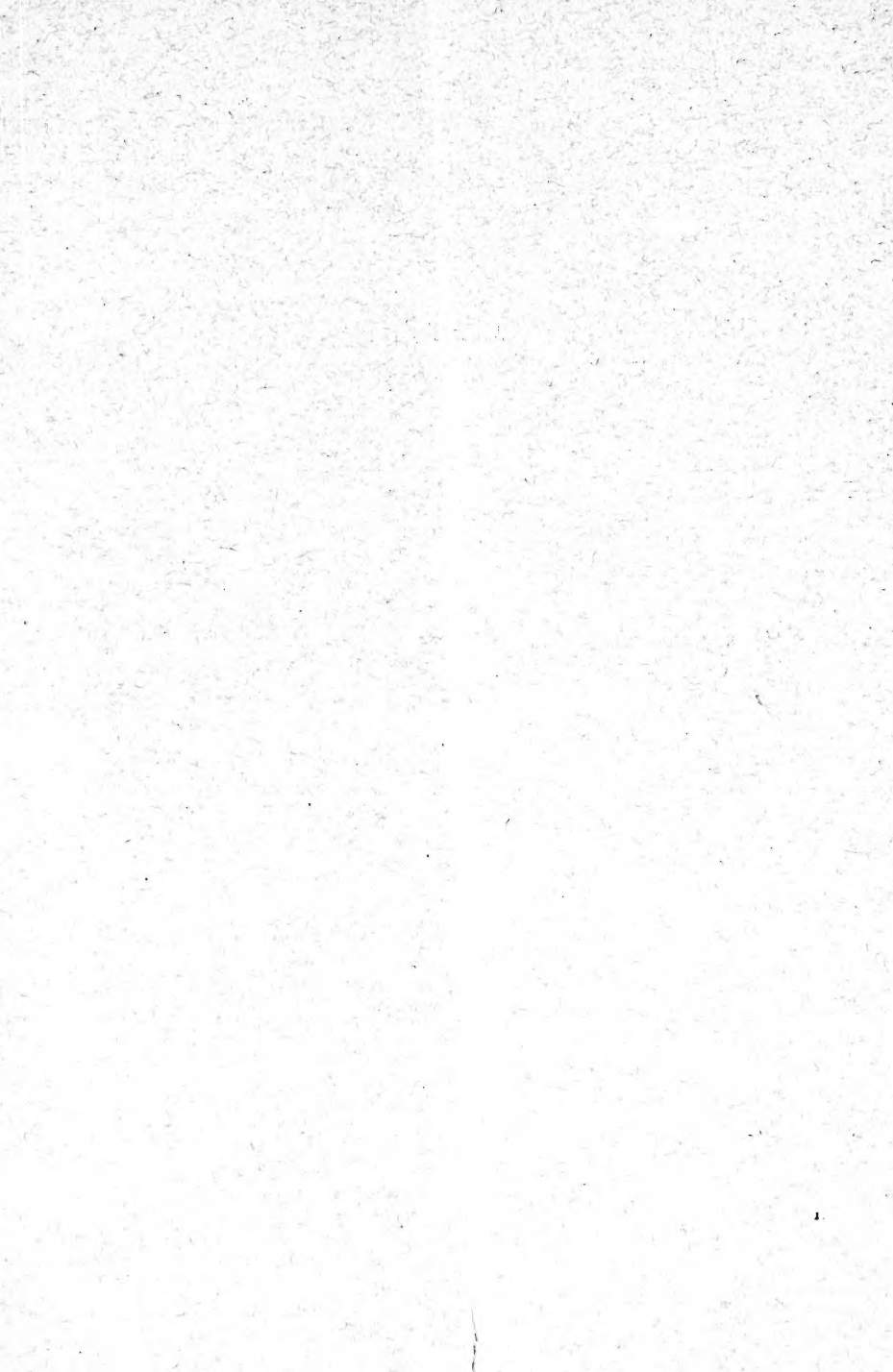
HON. LOUIS BEAUBIEN,

READ BEFORE THE

DAIRY ASSOCIATION OF THE PROVINCE OF QUEBEC,

AT THE

ANNUAL MEETING HELD AT ST. HYACINTHE, ON
13TH AND 14TH JANUARY, 1885.



SILOS AND PASTURE LANDS,

BY HON. LOUIS BEAUBIEN.

MR. PRESIDENT AND GENTLEMEN :—

“ Our winters are long and our cattle have to remain for seven months in the stable.” Such is the answer we invariably receive from our farmers when we advise them to keep more cattle. They have to stuff their barns and make them of considerable dimensions ; so they stop to reflect and become discouraged at the task before them.

If we could only help them a little.

I am quite aware, gentlemen, that in the exercise of your industry, your motto is, in a few words ; to increase your herds, to improve the breeds, and to give them always wholesome food in abundance.

We all know the excellent results obtained by your association, and we are all impatient to see your example quickly followed by all, thereby assuring comfort and prosperity to our people.

The remarks which I am about to make will probably contain nothing new for most of you. You are quite at home on the subject of which I intend to treat ; but our audience does not consist merely of those who are present here. Perhaps some one may derive a benefit from our experience.

I intend to speak of the manner in which we may, by means of that plant, the gift of heaven, the treasure of the agriculturist,—I mean Indian corn or maize,—continue, even throughout our long winters of which we complain, to give our cattle the same rich pasture and food which they enjoy in summer ; to put away for the whole winter, good green grass which our cattle can eat as if it had just been mown, thereby giving our winter butter the same rich flavor that it has when made in summer, the flavor of butter made from the milk of grass fed cows.

All this can be done, while at the same time decreasing the farm work, extending the area now under pasture, but reducing that devoted to grain crops.

You have all raised Indian corn and fed its leaves and stalks in their green state, as fodder.

When a good dairy-man fears a dry season, when he sees that his pastures will fail, he does not wish to see his cows suddenly run dry and be quite lean when stabled in the autumn. So, as soon as the time for frosts has passed, he at once sows his patch of Indian corn. He selects a good, fertile piece of ground, well manured and ploughed in the autumn ; he again ploughs it deep and cross-ploughs it in the spring, passes the pulveriser over it, harrows it, rolls it, runs furrows with the double plough at a distance of thirty inches from each other, and then sows his maize, one bushel to the acre.

As soon as it has sprouted he scatters plaster about, and does the same once or twice later on. He keeps the field well weeded until the plants cover the soil.

And then he gets a crop ! One would think that a man on horseback could almost hide himself in it. Some plants are eleven and twelve feet high, the average being eight feet.

It is the yield of such a field that I will shortly suggest that you put away according to a method called *ensilage*. If the crop has been a fair one, the yield of one acre will feed six head of cattle for six winter months. In the States, the yield of one acre has fed four head of cattle for a year. Can any other plant but Indian corn produce the same result ?

Beet-roots, carrots, clover all are distanced.

But let us not anticipate ; let us return once more to our intelligent dairy-man.

You, gentlemen, who are members of this association, you make butter and cheese well, but let us see how he makes milk.

When the grass withers, when the sun burns up his pastures, when Dapple and Brindle do not fill the pail as usual, notwithstanding all the dairy-maid's efforts, he proceeds to his field of green corn and from it he liberally feeds his herd. He continues to do so as long as his pastures fail him, even until winter sets in, if necessary, and his cattle will be fat, in good order and yield plenty of milk when stabled. He will not have to

spend all he is worth to put flesh on animals which have lost it through bad pasturage. They will be easier to keep and will not eat up all the contents of his barn.

But his time of tribulation will come. His field of green corn, has, it is true, given him entire satisfaction all summer. He has seen his stalks grow up to an unusual height so as to be the talk of the place. He has waited until the first frosts have whitened the edges of the upper leaves before gathering in his crop, or at least what remained after having supplemented the pastures during the latter part of the summer.

• He has his crop all ready and tied up in long bundles. How will he keep it? That is the question. He cannot put it in the hay-loft, for it will heat. If he stacks it outside, the moles and field mice will destroy it, and after mild weather, the corn will be caught in the ice, and the lower part will only be available for use in the spring, and then in a damaged condition.

However, he makes up his mind and stacks his corn close to the stable.

The winter advances and, just as he feared, the moles are playing havoc and the lower parts of the bundles stand in eighteen inches of ice. He has to cut them out with a hatchet before taking them to the barn. Some day when the weather is very cold, wishing to make use of the time during which he cannot work outside, with his teams, he passes a good part of this crop through the feed-cutter.

The maize after being cut up remains in the barn which is as cold as—well, as a barn. This does not prevent the heaps from heating, and although he may spread it to a depth of six or eight inches over all the available space in the barn, it is of no use. He may feed it as fast as he can to his cows, he cannot stop fermentation and he loses a portion of his crop.

Now is the time for us to come to the assistance of this worthy dairyman and to advise him to make a silo. By so doing, he can double the area of his green maize patch; he will have enough for summer and for winter. If he has twenty-four cows, he will sow four acres for his winter supply.

and a certain area over that for the summer, to make up for any deficiency in pasture.

The construction of a silo is not a very formidable undertaking.

Let us deal with it at once, both for the benefit of our dairyman, and also of all who may take an interest in the subject.

THE SILO.

The silo is a cavity, either in the ground or above ground, open at the top, but whose sides and bottom are air and water-tight. It may be of various shapes.

There are some which are cheap and some which are expensive. Some are of earth, some of wood. some of masonry.

There are thousands of them in France and in Germany. In England, in 1884, there were 612, measuring 1,861,774 cubic feet, and in 1885,—see how rapid is the progress—there were 1883, measuring 3,313,106 cubic feet.

In the United States, there must be at least six thousand at the present moment.

In the Province of Quebec, (where we are sometimes a little behind hand) there is one at Mr. Pierce's, one at Mr. Cochrane's, one at Mr. Dawes', one at Mr. Didace Tassé's, one at Mr. Lemire's, one at Mr. Marion's and one at Mr. Bourque's.

The maize can be placed in the silo either entire or after being cut into short lengths with the straw cutter. The latter method is safer and preferable, but the first will do.

Let us first take up the preparation of the silo in the most economical manner, without using the straw-cutter.

UNDER-GROUND SILOS.

Choose the side of a hill or at least a place where there is no danger of water flooding it. Dig to a depth of five or six feet, throwing the earth up on each side. Let the opening be wider at the top than at the bottom,

say ten feet wide at the top, and seven at the bottom, the sides having a uniform slope. By this narrowing at the bottom, the maize can be better packed, leaving no opening for the air to get through. I may say, at once, that air is the deadly foe of ensilage; the silo might even be defined: "a means of protecting a crop from the action of the atmosphere."

The depth of the silo under-ground will be determined by the extent of the crop to be put away. Before putting in the maize, it will have to be left to wilt for two or three days on the field; this will take away a good deal of its moisture and make it easier to keep.

Lay the maize stalks, by hand, lengthwise and carefully, close together and stamp them down well. When the level of the surface is reached, you can drive your team over the maize, to press it down still more, but be careful that no dung dirties it. When once you are above the level of the soil, continue to spread the corn, but in such a manner as to round it off at the top. On the cone, you will throw the earth dug out of the pit to a depth of two feet, well laid on and carefully sloped.

The mass will begin to ferment, but you need not be uneasy, provided you have not taken more than two days to fill up your silo; for it is necessary that the maize be covered up, as soon as possible, with this thick and heavy layer of earth, so as to keep out the air, and limit the fermentation. If any cracks in the earth cover have been caused by packing the corn or otherwise, fill them up at once and then rest satisfied.

OVER-GROUND SILO.

Sometimes the level of the ground does not allow of its being dug to a sufficient depth for a silo. In such a case it is made completely above ground and consists in a layer of earth two feet thick, which is placed on top of the maize, after it has been properly laid down. The earth for this layer must be taken from all around the silo, leaving a ditch to run off the rain-water.

No complaint can be made as to the cost of the silos which I have just described.

SILOS IN WOOD AND MASONRY.

I would advise those who wish to be more at their ease, to have the silo more conveniently situated under the same roof as the cattle, and to obtain more beneficial results, to have a silo made of wood or stone, provided with a feed-cutter and a carrier to lift the fodder over the walls.

When the silo can be built so that at least one half of it will be below the surface of the ground, it will be found very convenient, as it renders loading easier.

The under part of the silo should be thoroughly drained, for the presence of water would destroy the crop.

WOODEN SILO.

Let the frame be solid, for the pressure against the the walls caused by packing the fodder is very great. The inside walls should be quite perpendicular ; they should be made of double planking, tongued and grooved, with tar paper between the planks. If it is partly under ground it would be better to build it of masonry.

SILO BARN.

This is the wooden silo just described, but it is placed in the barn and is used for housing the ordinary crops as well. These are threshed early in the fall so as to allow of the ensilage being stored before the frost.

SILO IN MASONRY.

The walls should be from eighteen inches to two feet thick ; the inside walls quite perpendicular and cemented.

The corners should be rounded off inside.

In these silos, there should be an opening two feet wide from top to bottom, which will serve as a door, and be closed at the time of loading.

CONTINUOUS PRESSURE ON THE PRESERVED FODDER.

When once the silo is filled and well pressed, the mass is covered with separate boards or planks, and upon these are placed heavy weights, so as to

maintain a constant pressure and expel the air from the silo, as the maize, softened by fermentation, packs more closely.

At first it was recommended that a single load of stone be put on for every superficial yard, but experience has shewn that the quantity could be considerably reduced.

These materials may be replaced by piling on the contents of the barn, the weight of which will thereby be turned to advantage. In such case it will be necessary to put a layer of straw two feet thick between the barn contents and the preserved fodder, and this straw is sure to be damaged.

ENSILAGE.

This may be done in any kind of weather, in rain or sunshine, whether the crop be wet or in its usual condition. It is cut down and carried to the straw-cutter, whence it is taken by the carrier into the silo. It should be cut as short as possible, and this likewise has been found out by experience. As the fodder is put in the silo, a man spreads it out evenly and stamps it down continually. When there is a depth of three feet and a half, the filling up is interrupted for a couple of days. The preserved fodder then begins to ferment. Before recommencing to fill up, the fodder is again stamped down and another layer is put in like the first. The process is repeated at similar intervals until the silo is full.

Experience has shewn that by allowing the fodder to commence fermenting to a considerable degree, by layers, it is better prepared for the complete exclusion of the air. It will yield better under the last pressure to which it will be submitted before a new layer is put in. This new layer will, also, by its weight, force the air out of the lower one and cool it. Air being the active principle of fermentation, its complete expulsion stops this fermentation, and in this case, stops it at the right moment when the preserved fodder is in a state of alcoholic fermentation. When the silo is opened, the contents will be found to be of a brownish green colour and have the distillery smell.

It will be easily understood that by filling up the silo, at intervals, layer by layer, and arresting the fermentation as each layer is done with, a

much less constant pressure will be required than if the silo had been filled up at once.

It was when this was done that it was recommended to put on a load of stone for every square yard of surface.

FERMENTATION.

I have stated that there should be an interval of a couple of days between the putting in of each layer. The farmer will have to use his own judgment.

There are three kinds of fermentation :

1. The alcoholic fermentation, which is the first, its presence is detected by the smell of alcohol.

2. If the temperature continues to rise, we have acetic fermentation in which the preserved fodder assumes the acidity of vinegar.

3. As the fermentation continues, we have putrid fermentation, after which the preserved fodder is fit only for the manure heap.

Fermentation must therefore be arrested at the right stage, which is easily ascertained by examining the preserved fodder. The state of alcoholic fermentation is preferable. Then the first layer is put on and pressed, or the planks and weights are laid on, if it be the last layer.

While the ensilage is being prepared, it must be carefully pressed down along the sides, for it is from there that the introduction of air is most to be feared. It is not necessary to salt the fodder which has been cut and put away in good silos of wood or masonry,

In earth silos, especially when the maize is laid down uncut, it is better to salt it, the inner portion slightly and the outsides and top more thoroughly.

In silos made of masonry, as I have already recommended, it is better to round off the inside corners. There will then be less danger of cavities being left in the angles, or of the packing being defective.

By this process it will be seen that the deeper the silos the better they

are. They should never be less than twelve feet deep. It is also good to have a small elevation over the silo boarded up so as to increase its height. When the mass is completely pressed down, the silo is full only to a level with the top of the real walls.

It is recommended to have on top of the walls of the silo, wide and strong platforms on which the stones are placed when removed, in order to get at the contents. This also makes them easier to handle.

Pressure may also be exercised by means of heavy pieces of timber, bags or boxes of earth, &c. What is required is a certain weight which, however, is not great when the silo has been filled by successive layers.

Silos of wood or masonry should be roofed over, if located outside of the farm buildings.

THE BEST KIND OF FODDER FOR ENSILAGE.

I have mentioned maize, because it is, above all others, the right kind of plant for ensilage—that which experience has proved to be the most remunerative. Several other plants can be used, but not one to the same advantage. I may at once say that of all the different kinds of maize, the Western is generally preferred.

In silos of wood or masonry (I need not add that the latter are the best) the maize can be put away uncut, even better than in earth silos, but I cannot recommend this system. The straw cutter, which is so useful an implement for every farmer, is of the greatest use in this connection. Experience and analyses show that maize, even before attaining maturity, contains more nutriment in its ears, in the upper part of its stalk, in its leaves, than in the lower part of the stalk. Cattle well know which end of the plant they have to get at, and leave aside the lower part of the stalks, especially when they are ligneous or well advanced in growth. It is, therefore, advisable to thoroughly mix up the various parts of the plant, and when so mixed, to place them in the silo, where the less useful portions can derive a benefit from the better portions. The whole will thereby be rendered equally good, and there will be no loss. This is the work of the straw-cutter.

In the silo we can mix up short straw, bales of wheat, oats and barle. They will all benefit by their being in contact with the maize, but their presence is not at all necessary for the preservation of the contents of the silo.

Often after an early crop of potatoes has been cleared off the field, farmers sow oats which they feed green to their cattle in the fall. When the latter do not consume it all, and the remainder has to be gathered in, they hardly know what to do with it. When heaped up in the fields it loses all value. It is easy to see that the place for this is in the silo.

In places where buckwheat is exposed to frost, it will be cut down as soon as it is touched by it and placed in the silo, and nothing is lost. This is not the case at present.

CONSUMPTION OF THE PRESERVED FODDER.

When you wish to begin to feed it, which should not be until one month after you have completed the filling of the silo, you open it at one end, taking out from top to bottom, the quantity required day by day.

If you wish to feed it warm to your cattle, as all good dairymen do, what you take out from the silo on one day will only be eaten on the morrow. In the meantime, the preserved fodder is taken into the barn and mixed with the proportion you choose, of bran or shorts and left in a heap. It will soon ferment and the next day your cattle will have warm food, just as if you had used a boiler and consumed wood or coal.

Cattle may be fed exclusively on this preserved fodder, and even get fat on it; but it is better, especially for milch cows, to add oil-cake, bran or shorts.

I find in Mr. Baylie's work that as many as eight head may be fed for six months with the maize grown on an acre and preserved as ensilage. Supposing that at the first start we do not do quite so much. Supposing we only feed six to the acre. There are not many of our farmers who have twenty-four head of cattle to winter, and yet what a source of wealth is such a number of cattle.

What a quantity of manure for another crop, especially if one knows

how to collect and save the liquid manures. What a yield of milk, of butter, what prospective gains. And all this can be had by sowing four acres with green maize.

Last season, a dairyman of Longue Pointe, in my county, after having sold ninety-two dollars worth of early potatoes grown on an acre of good soil, at once sowed this acre with Indian corn. He gathered enough to feed eighteen head of cattle during the months of November and December. The maize took the place of hay. At that rate, the acre would have yielded ensilaged crop enough to feed six head for six months even after the first crop of potatoes. Therefore, those who assert that an acre of green maize will feed seven head of cattle for six months, are not far wrong.

CAPACITY OF THE SILO.

This, like the area of the field sowed in maize, will be proportionate to the number of cattle to be wintered over, and the amount of preserved fodder which we wish to give them. One cubic foot per head, some recommend a foot and a half, per day, is all an animal can eat. The cubic foot weighs 65 lbs.—183 cubic feet per cow—six months—equal 4,392 cubic feet for 24 cows. A silo 15 feet wide, 24 feet long and 12 deep, will contain 4,320 cubic feet of preserved fodder. In addition to this, the wooden elevation will be required, for when the pressure is ended, it remains empty.

In the United States, from twenty-five to seventy-five tons of green maize have been raised on an acre of ground. Two tons of preserved fodder are worth a ton of the best hay. I have not verified, myself, the weights and yield which I mention, but I have taken them from the printed works of men who have been successful with their ensilage.

OF THE CHANGES WHICH ENSILAGE CAN EFFECT IN OUR SYSTEM OF CULTIVATION.

For some time to come we must hope that cattle will be the best product of our farms. In the first place it goes to the market by itself, except when it has to cross the Ocean. While on the farm, it pays its board, because it is the manure-producing machine either on the pasture lands or in the stable; and therefore, it brings money into its owner's purse.

Do we not notice the same fact everywhere, namely, that farmers who go in for stock-raising succeed much better than those who confine their efforts to cultivating grain ?

If you wish to remain or become a stock-raiser, a dairyman, a butter or cheese manufacturer and, at the same time, greatly simplify your system of cultivation, to relieve it from an infinity of operations which are not always remunerative, now that manual labour is so expensive ; I may tell you this : lay out all your farm in pasture land except a good sized piece on which you will raise what you require to fill your silo. Take care of your pastures, give every attention to your green maize, see to your fences and ditches and that is all. I can promise you that this very simple system will bring you prosperity. This kind of farming has been carried on with a great success in France. No cereals are grown, and the material for bedding is taken from the forest.

I know you will tell me that a small plot of ground is required to raise vegetables for the family and another to be sown with oats for horses and cattle ; while a little wheat is must also be raised. This is true, but you will carry on this system of cultivation only on a small scale and as an exception to the general plan. The chief work to be done is to inaugurate and keep up your pasture lands and green maize. But the pastures must be really good ; you must not have great fields where the cattle will get more exercise than food ; they must be able to browse everywhere. The maize should be kept clean and the ground broken and dug up from time to time and plaster must not be forgotten. In the fall, the piece of ground should be well manured and ploughed. Then you will find that you have much fewer occupations and more profit.

I have a farm which is at some distance from where I reside. When my silo at Outremont will be finished and in full working order, I want the farmer on that farm to examine it in all its details. Then I will build one for him also and the only instruction I will give him will be to turn everything into pasture lands and to raise enough green maize to fill up his silo ; to do this only, but to do it well. I am not uneasy about the result. Our farmers are good hands at looking after cattle and with a

well filled barn the latter will be in good condition when they come out in the spring.

What a number of farms in up lands, which are difficult to cultivate but are excellent in pasture, could be made valuable by means of ensilage. All that would have to be done would be to find pieces of ground of no great extent on which the necessary maize could be grown.

The farm implements would no longer be so costly and the same remark applies to the buildings. Pasture lands always fertile, always in good order, with abundance of white clover, the best of all grasses for pastures, would take possession of these slopes of broken ground through which the plough can hardly pass.

The farmer, who goes to market every year to sell his fat stock, will be all the richer and will never regret the time when he used to make so many trips to town to sell his grain and leave behind him the fat of the land.

Consequently, as far as we are concerned the silo means : greater facility in raising and feeding cattle ; larger herds, more butter, milk, cheese, manure and heavier crops and, above all, more profit, the great object of mankind.

I should say that the average size of our farms is one hundred acres. Now what is the average number of the farmers' cattle ? Is it not true that, as a rule, they do not winter more cattle than horses and the reason why they do not have more is the difficulty of feeding them during the winter ? We should therefore endeavour to reduce the cost of wintering.

In the south of France, ensilage is sown at the beginning of the season in order to have a plentiful supply of good green fodder when the summer heats burn up the pastures and wither the grass.

Here in Canada our ensilage gives us an abundant provision when the ground is covered with its mantle of snow. There, ensilage is for summer and winter, while we are more fortunate in requiring ours only for winter.

Has any one of you ever considered what astonishing results can be

obtained from ensilage and soiling? Ten acres of good land can feed twenty-four head of cattle from one year's end to the other. What other plant than maize could enable us to do this.

THE SILO AND THE SETTLER.

You need not be surprised if I tell you that the settler in the bush can find an excellent use for a silo, even if he cannot buy a straw-cutter.

He generally settles on his lot in the fall; he first clears away the brush-wood and puts up his log house. One of the first objects of his ambition is to be able to feed a cow, whose milk will be available for his wants and those of his family. During the first winter he cuts down the trees in the part he has cleared of brush-wood, piles up the trunks and prepares to burn them in the spring.

When the spring comes, after burning up all the fallen timber, he passes the harrow over the ground and gets through his sowing. If he wishes to keep one or two cows the very first year, he may select the most convenient spot for sowing his green maize broadcast.

Everyone knows that in the forests composed of hard wood trees, cattle can easily feed themselves and give fine milk all summer. While the cows are browsing in the forest, with bells on their necks, the winter's provision of fodder will grow rapidly in the virgin soil, and in the fall the precious crop of maize will be carefully put away in the earthen silo, or one made of logs like the settler's house, the inside walls being squared with the broad-axe and the interstices well filled in with moss.

The cattle will be better fed in winter than in summer and the children will have milk in abundance.

Under the ordinary system, the settler could not expect the luxury of having a cow until the third year and sometimes not even then.

In his silo, the settler can keep with his maize all the leaves of his turnips which he always sows after the *burning*.

But let us return to the farmer and the ensilage which we wish him to try. You all know, gentlemen, that the best butter, both as regards color and taste, is made from the milk of grass-fed cows.

Let the grass on the pasture lands grow, mow it, dry it well, in a word, make hay of it and feed it to your cows. The butter no longer has the same taste. Its colour is pale, it is no longer the butter produced by feeding on grass. Your fodder, therefore, has deteriorated; and you have experienced a loss in getting your crop. Take the same grass from the pasture in its green state, put it in the silo and feed it to your cows, and you will get the same butter as you got in summer. I am sure you will agree with me that this is strong argument in favor of ensilage. The crop does not deteriorate. You have the meadow always near you, for as soon as your cows begin to eat the contents of your silo, their yield of milk increases rapidly.

THE SMOOTHING HARROW.

When I visited Mr. Dawes' silo, I found that for his green maize he made an extensive use of *Thomas' Smoothing Harrow*. Its teeth are round, long, and put in obliquely from front to rear. Mr. Dawes sows his seed in rows, and from the time the maize is two or three inches high until it is a foot high, he harrows it lengthwise and crosswise from time to time, without injuring the crop, which can stand this rough usage, which, however, destroys all the growing weeds.

When the price of labour is high, this is a good expedient to know.

A MINE TO BE WORKED.

From all which has just been said you will, no doubt, conclude with me that the silo has the result, as it were, of doing away with our long winters, which are no longer a source of dread for us. Does it not seem to you that the few acres of snow, of which Voltaire spoke so contemptuously, will rise considerably in our estimation and will belie the ironical smile which played on the lips of the great French skeptic.

We have a mine to work and we exhort all our fellow countrymen to follow up its leads with courage and perseverance.

THE SILO FOR SHEEP AND OTHER FARM ANIMALS.

Hitherto we have only spoken with reference to horned cattle. The silo will preserve, equally well other green fodder for sheep and even for

swine and horses, and supply them with the greater portion of their food.

ENSILAGE WILL BE ADOPTED THROUGHOUT OUR PROVINCE.

I notice with pleasure that the silo which is in such favor with our neighbors will soon be extensively in use with us.

The Trappist Fathers at Oka, where they have just reclaimed 200 acres from the forest, intend soon to have one in their spacious barn and stable, which is 150 feet long by sixty wide and is two stories high.

Father Jean Baptiste, of that institution, is now in France visiting the splendid silos of Mr. Goffart, one of the originators and energetic propagators of this great improvement.

The Fathers at Wentworth, who are so thoroughly conversant with the breeding of cattle, intend to build a silo, while the institution for deaf mutes at Terrebonne intends to do the same at its farm, where it has just erected a splendid barn and stable 140 feet by fifty and two stories high.

We will have instances of this all over the country, and in our turn our efforts will be crowned with the success which has been obtained elsewhere.

When a hospitable host gathers his guests round his table he always places before them a good *pièce de résistance* which is to be the foundation of the feast. The other dishes are but its satellites, an accompaniment. In the same manner the maize preserved in the silo will form the basis of the food given to our cattle, and the solid foundation of our success. With us the silo will produce the same healthful revolution which it has produced elsewhere. We will no longer hear complaints of our long winters. They will be a thing of the past.

THE ENGLISH COMMISSION.

The agricultural department of the Privy Council in England sent out a series of questions last year to the many owners of silos in that country. The object of this was to collect and condense their experience and to communicate it to the agricultural public. You will, perhaps, like to hear a synopsis of this report, although it shows that ensilage has not yet thor-

oughly become a part of the English system of farming. 373 replies were received and condensed as follows:—

Yield of Milk.—No change, 22; improvement in quantity and quality, 95; decrease in the same, 1; increase in quantity, 93; decrease in the same, 5; quality improved, 34; the same deteriorated, 5; quality improved and quantity reduced, 4; quantity increased and quality reduced, 5; favorable results without mention of quality or quantity, 30.

Yield of Butter.—No change, 1; increase in quality and quantity, 18; quantity reduced, 2; quantity increased, 24; quality reduced, 3; favorable results without mention of quality and quantity, 15; unfavorable results, 1.

From this report it would appear that the greater portion of the fodder is used in feeding horned cattle, and, on the whole, the results are satisfactory. You know that the English are not enthusiastic.

The report says that the preserved fodder is preferred by cattle to all others.

The same remark applies to horses. This preserved maize is the cheapest food. Passing from dry food to this preserved fodder, a marked increase was observed both in the quantity and quality of the milk. Cows have been fed on this alone for several months and with excellent results.

Many people assert that by means of the silo a larger number of cattle can be fed on the farm; the preserved fodder is a cheap and excellent substitute for roots. It is recommended that too large a quantity of the fodder be not kept close to the milch cows, for fear that the alcoholic smell should give a taste to the milk. The person who gives out the ensilage should carefully wash his hands before milking the cows. It is generally admitted that ensilage is a sound and nutritious food. Cattle generally prefer the mild and sweet preserved fodder, while some like it acid.

This is a synopsis of that important report which fills a volume of 300 pages. I thought I would mention it here, in order to show to what extent public attention in England has been excited by this valuable improvement. The authorities took the matter in hand and hastened to communicate to the whole nation the results obtained by those who were instructed

to make the experiments. The consequence is that in 1886 there will be over 4,000 silos in England.

But it is in the United States that this new system of farming has increased to the greatest extent.

Mr. Baylie, who was one of the first who endeavored to introduce the silo into his country, declares that ensilage will effect quite a revolution in American agriculture. By its means will be re-peopled the old abandoned farms of New England which can now be bought at a very low figure.

Are there not also some parts of our Province where it is necessary that the value of property be restored ?

Before he used the silo, Mr. Baylie's farm could barely support six cows and a horse. Now it supports thirty-five cows, five horses and a hundred and twenty-five sheep. This is really a revolution, and Mr. Baylie says that the French agriculturist, Goffart, who inaugurated the system and whose example he followed, should be honored by the whole world.

PASTURE LANDS.

It seems to me, gentlemen, that I have kept your kind attention so long fixed on ensilage that it looks like temerity on my part to ask you to follow me on an excursion through our pasture lands. However I only ask you to cast a hasty glance at them.

Do we thoroughly understand the importance of pasture lands ?

Do we cultivate the land set apart for them as we do that from which we wish to get a good crop ?

Do we establish those permanent pastures, which are the wealth of a farm and such as are found in England for instance ?

Unfortunately we have to answer these questions in the negative.

With us the pasture has to look after itself. Who will take the trouble to create it, to constitute it of all the grasses which are to make it rich ; to keep it in perfect order and finally to give it a fair share of the farmer's labour and attention !

When a meadow no longer yields anything under the scythe, it is ripe for pasture.

If there be a rocky, woody or swampy piece on the property where the plough cannot pass, it is called a pasture. But do we at least make improvements to it so as to render it productive?

Very seldom. If the cattle do not thrive there, we will make it up to them by letting them have the after-growth of the meadows. But in the meantime we let them suffer, get thin and run dry.

The fields which becomes pastures after they have been meadows offer to the cattle only their scanty growth of timothy, very little clover, nothing of that diversity of herbs which, by their varied taste, tempt the animal and sharpen its appetite.

Such a state of affairs requires a remedy and all the more so that the pasture land is that which will yield the greatest returns for the smallest amount of labour.

Let us have a permanent pasture on each farm in which we will for ever raise the various plants which it will grow, or at least those which are considered the most useful.

Let us say that the pasture has a nature, a character of its own; that we will sow in it grass for the cattle to browse upon and not hay to be mowed; in a word that it is to be constituted differently from the meadow.

On nearly every farm there is one of those spots left as a permanent pasture, but which has never been really made one; we have turned the cattle into it and that is all. And yet this neglected field, the pariah of farm, may be turned to good account.

The pasture land is not proud, and is satisfied with but little; it can be established anywhere and will spread its fine mantle of delicate, close and velvety grass on steep slopes, on the heights and in the valleys where the plough cannot be taken.

In spots which are repulsive from their rockiness, it will be as prodigal of its gifts as elsewhere. Yes, it can be placed anywhere, provided we only devote a little labour to it.

By its means we will be able to make use of those hills from which we have inconsiderately banished the primeval forest; where the slope is too steep for the teams to pass, these uplands will become productive parts of the farm. If the pasture land is swampy it must be drained and the sour and swamp grasses replaced by those of the field.

Such a permanent pasture, well established and well preserved, will be an invaluable assistance to the farmer.

HOW TO ESTABLISH A PASTURE.

We have to do here as elsewhere; to drain thoroughly; to level the ground as much as possible; in the autumn the ground should be ploughed or dug as occasion may permit; in the spring it must be harrowed and cross-harrowed; the mixed seed sown; the stones removed and the roller passed over. During the summer we must mow, at least twice, the weeds which are sure to crop up. We may sow barley or oats, but the grass seed will, during the very first summer, grow rapidly, if we leave it in sole possession of the soil.

Various mixtures are recommended. but let white clover be the favorite grass for our pastures, as maize is for our silos.

MIXTURE FOR AN ACRE.

White clover, 6 pounds; Alsace clover, 1; Rawdon clover, 4; timothy, 2; Italian rye grass, 1; Kentucky blue grass, 1; orchard grass, 1.

This mixture may be varied, but white clover should always occupy the first place.

All the seeds above mentioned can be had at Mr. Evans.

By this means we will improve our old pastures until their whole area be fully productive, until the animals can browse everywhere with enjoyment.

MAINTENANCE OF THE PASTURES.

Wherever the cattle leave any spots not closely cropped, the scythe should be passed over them at once, for otherwise the grass which grows there will become hard and be lost. The pastures should therefore be

gone over twice during the summer with the scythe, not only to cut down the weeds before their seeds are scattered by the wind, but also to cut down the tall grass left by the herd, so that the pasture will be tender and sought after throughout its whole extent.

If moss shows up anywhere, the harrow should be thoroughly passed over, and a small quantity of seed thrown on it with plaster.

When white clover looks like giving out, if such a thing ever happens to it, spread a barrel of plaster to the acre and you will see the clover coming up.

Carefully remove the stones every year and gather up everything which litters the ground. Whenever you go to work on the pasture, always carry with you a little mixed seed. If, in removing a stone or an old stump, you leave any portion of the ground uncovered, level the spot and sow your seed, unless too late in the season.

Once a month it will be necessary to spread out the cow-patches and droppings with a rake in order that the pasture may be equally fertile everywhere and to avoid having those tufts of grass too strongly manured which the cattle never touch.

Wherever the grass deteriorates, new seed must be sown at once. Finally, if you can plaster all the surface and spread a little manure on the surface every fall, the pasture will be none the worse for it.

Such are, in a few words, the attention and care to be given to pastures in all kinds of soil and whatever may be the nature of the ground.

A pasture which has been so treated is a pretty sight, even in the midst of rocks and of broken ground ; it would seem as if white clover preferred to grow among rocks. The well cared for and regularly mown lawns around handsome residences are not more agreeable to the sight.

CONCLUSION.

Rich pastures in summer, a well-filled silo for the winter, are what, in concluding my remarks, I wish all my fellow-countrymen who are farmers. I know of nothing better to wish them amongst all the goods of this world. They will thereby be successful from one year's end to the other.

Then, gentlemen of the dairy association, you will have plenty of work for your pans, churns and centrifugals, in stemming the torrent of milk which will flow throughout the Province.

